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A taxonomic revision of Australian Conopidae (Insecta: Diptera)

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Abstract

A taxonomic revision of the Australian Conopidae is presented. Nineteen genera in four subfamilies are recognised. The Stylogasterinae are represented by the cosmopolitan genus *Stylogaster* Macquart and the Myopinae by *Myopa* Fabricius and *Thecophora* Rondani. A monotypic genus, *Notoconops* gen. nov., is described and placed in a new subfamily, Notoconopinae. The remaining fifteen Australian genera are assigned to the Conopinae. *Australoconops* Camras, *Chrysidiomyia* Kröber, *Conops* Linnaeus, *Delkeskampomyia* Kröber, *Heteroconops* Kröber, *Microconops* Kröber, *Neoconops* Kröber, *Pleurocerina* Macquart, *Physocephala* Schiner, *Smartiomyia* Kröber and *Stenoconops* Kröber are redescribed. Four new conopine genera are described: *Atrichoparia*; *Camrasiconops*; *Setosiconops*; and *Tanyconops*, with the following resultant new combinations: *Atrichoparia curticornis* (Kröber) (from *Heteroconops*); *Camrasiconops ater* (Camras) and *Ca. rufofemoris* (Camras) (from *Microconops*); and *Setosiconops robustus* (Kröber) (from *Neoconops*). *Callosiconops* Kröber and *Paraconops* Kröber are regarded as junior synonyms of *Chrysidiomyia* and *Pleurocerina* respectively with the following resultant new combinations: *Chrysidiomyia hirsuta* (Kröber), *Pleurocerina aristalis* (Camras), *P. longicornis* (Kröber), *P. nigrifacies* (Kröber), *P. similis* (Kröber), *P. turneri* (Camras).

A total of 100 species of Australian Conopidae are now recognised. No new species of Myopinae or Stylogasterinae are described. Representative species only of *Atrichoparia*, *Camrasiconops*, *Heteroconops* and *Microconops* are described. All species of the other 12 genera are described or redescribed. These include the following 45 new species,: *Australoconops aglaos*, *A. aurantius*, *A. balteus*, *A. breviplatus*, *A. brunneus*, *A. camrasi*, *A. cantrelli*, *A. elegans*, *A. fulvitarsus*, *A. furvus*, *A. nebrias*, *A. neuter*, *A. pallorivittus*, *A. phaeomeros*, *A. ruficrus*, *A. vespoides*; *Chrysidiomyia rugifrons*, *C. setosa*; *Conops aureolus*, *C. badius*, *C. chvalai*, *C. sparsus*; *Heteroconops carnarvonensis*; *Neoconops brevistylus*, *N. glaber*; *Notoconops alexanderi*, *Pleurocerina aquila*, *P. brevis*, *P. chrysopyga*, *P. lamellata*, *P. lutea*,

P. luteiceps, P. occidua, P. saxatilis, P. scutellata, P. vespiformis; Setosiconops epixanthus, Se. similis, Smartiomyia arena, Sm. cerina, Sm. danielsi, Sm. macalpinei; *Tanyconops longicaudus, T. luteus, T. ocellatus*. *Australoconops ocellatus* (de Meijere) comb. nov. is resurrected from synonymy with *A. aurosus* (Newman). *Conops demeijerei* Kröber is considered a junior synonym of *C. seminiger* de Meijere. A lectotype and paralectotypes are designated for *Microconops fasciatus* Kröber.

Anatomical features used in descriptions are discussed and illustrated. Special attention has been given to the ultrastructure of spicules on female genital structures. These spicules show differences between genera and species. The high degree of endemism of the Australian fauna is discussed in relation to the world fauna and some preliminary thoughts on phylogenetic relationships are presented.

A catalogue of the Australian Conopidae is included as an Appendix.

Key words: Diptera, Conopidae, Australian, Conopinae, Myopinae, Stylogasterinae, Notoconopinae

1. Introduction

The Conopidae constitute a moderately small family of schizophorous flies including about 800 described species. Conopids are distributed worldwide except for the polar regions and many Pacific islands. The majority of conopids are black with yellow or orange markings and bands and often bear remarkable resemblance to their typical hosts—wasps or bees. Larvae for which biology is known are internal parasites of other insects.

1.1 Diagnosis of the Conopidae

Conopids possess a ptilinum and a combination of apomorphic character states that sharply differentiate them from other Schizophora. The head is large and wider than the thorax; this characteristic indicative of the common name “thick-headed flies” (Hennig 1973). Other apomorphic character states with respect to the groundplan of the Acalyptrata include: occiput and vertex with short setae; antennal pedicel without a dorsal cleft; precoxal bridges absent; basisternum of prosternum with elongated posterolateral corners (Speight 1969); midcoxal prong absent; R_1 bare; R_{4+5} and M strongly convergent apically and usually fused before wing margin (exceptions occur in the Baltic amber species, *Palaeomyopa tertiaria* Meunier and in the new subfamily from Australia described below; these have cell r_{4+5} widely open); vena spuria distinct in many genera; and females usually with highly modified sternites 5 and 6.

Other characters useful in defining many acalyptrate families occur in the plesiomorphic state in Conopidae: cephalic and thoracic bristles usually poorly differentiated; costa without breaks; Sc complete, not fused with R_1; crossvein sc-r present near apex of Sc; vein A_1+CuA_2 long, reaching or nearly reaching wing margin; males with aedeagal apodeme rod-like (J. McAlpine 1989).

1.2 Current status of conopid taxonomy

1.2.1 Subfamily classification

The subfamily classification of Conopidae is relatively stable with four widely-accepted subfamilies: Conopinae, Myopinae, Dalmanniinae and Stylogasterinae. All subfamilies are represented in most geographical regions. Exceptions are discussed in Section 5—Biogeography. Conopinae have a terminal antennal stylus; most have an elongate, strongly sclerotised, anteriorly-projecting haustellum that can reach three times the length of the head and is jointed or geniculate only at the base; labella are short, ovoid and somewhat pointed apically. The other three subfamilies are characterised by an aristate antenna and a second joint near the middle of the haustellum enabling it to fold back under the head at rest. In Stylogasterinae, the haustellum is very